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Books

1. Usman, M.R. **2017**. Short Handbook of Mathematical Formulas for Chemical Engineers. CreateSpace (94 pages).
2. Usman, M.R. **2015**. Comprehensive Dictionary of Chemical Engineering. Lulu Publishing (576 pages).
3. Usman, M.R.; Aslam, R.; Saleem, M. **2015**. Chemical Engineering Terminology. Rev. Ed. Lulu Publishing (543 pages).

Journal Publications

1. Usman, M.R.; Cresswell, D.L.; Garforth, A.A. **2021**. Methylcyclohexene and Methylcyclohexadiene Dehydrogenation-Hydrogenation over Pt/Al_2O_3 Catalyst. *Arab. J. Sci. Eng*. 46, 6635–6643.
2. Mumtaz, F.; Irfan, M.F.; Usman, M.R.; **2021**. Synthesis Methods and Recent Advances in Hierarchical Zeolites: A Brief Review. *J. Iran. Chem. Soc*. 18, 2215–2229.
3. Akram, M.S.; Aslam, R.; Alhumaidan, F.S.; Usman, M.R. **2020**. An exclusive kinetic model for the methylcyclohexane dehydrogenation over alumina-supported Pt catalysts. *Int. J. Chem. Kinet*. 52, 415–449.
4. Munir, D.; Amer, H.; Aslam, R.; Bououdina, M.; Usman, M.R. **2020**. Composite zeolite beta catalysts for catalytic hydrocracking of plastic waste to liquid fuels. *Mat. Renew. Sust. Energy*. 9, 11–13.
5. Usman, M.R.; Shahid, Z.; Akram, M.S.; Aslam, R. **2020**. Densities and Thermal Expansion Coefficients of Pure Methylcyclohexane, 1-Methylcyclohexene, 4-Methylcyclohexene, 1-Methyl-1,4-cyclohexadiene, and Toluene and Binary Mixtures of Methylcyclohexane and Toluene at 283.15 K to 358.15 K and 1 atm. *Int. J. ThermoPhys*. 41, 44.
6. Usman, M.R.; Munir, D. **2020**. Waste Plastics to Liquid Fuels over Al-Impregnated Zeolite Beta Catalyst. *Int. J. Mater. Sci. Eng*. 8, 32–37.
7. Munir, D.; Usman, M.R. **2018**. Catalytic Hydropyrolysis of a Model Municipal Waste Plastic Mixture over Composite USY/SBA-16 Catalysts. *J. Ana. Appl. Pyrolysis*. Accepted for the Publication.
8. Mateen, A.; AlOtaibi, F. M.; Usman, M.R. **2018**. Environmentally Friendly Fuel by n-Heptane Isomerization: Kinetics of Catalyst Deactivation. *Int. J. Chem. Eng. Appl.* Accepted for the Publication.
9. Irfan, M.F.; Usman, M.R.; Rashid, A. **2018**. A Detailed Study of Heterogeneous, Homogeneous and Nucleation Models for Dissolution of Waste Concrete Sample for Mineral Carbonation. *Energy*. 158, 580–591.
10. Chawla, M.; Rafiq, S.; Jamil, F.; Usman, M.R.; Khurram, S.; Ghauri, M.; Muhammad, N.; Muhtaseb, A.H.; Aslam, M. **2018**. Hydrocarbons Fuel Upgradation in the Presence of Modified Bi-functional Catalyst. *J. Clean. Prod*. 198, 683–692.
11. Munir, D.; Irfan, M.F.; Usman, M.R. **2018**. Hydrocracking of Virgin and Waste Plastics: A Detailed Review. *Renew. Sustain. Energy Rev*. 90, 490–515.
12. Munir, D.; Abdullah; Piepenbreier, F.; Usman, M.R. **2017**. Hydrocracking of a Plastic Mixture over Various Micro-Mesoporous Composite Zeolites. *Powder Tech*. 316, 542–550.

13. Khawaja, S.Y.; Usman, M.R.; Nasif, M.; Akram, M.S.; Afzal, W.; Akhtar, N.A. **2017**. Mass Transfer Efficiency of a Tall and Low Plate Free Area Liquid Pulsed Sieve-Plate Extraction Column. *Int. J. Ind. Chem.* (Published Online).
14. Shahid, M.Z.; Usman, M.R.; Akram, M.S.; Khawaja, S.Y.; Afzal, W. **2017**. Interfacial Tension for Various Organic-Water Systems and Study of the Effect of Solute Concentration and Temperature. *J. Chem. Eng. Data.* 62, 1198–1203.
15. Ghouri, A.S.; Usman, M.R. **2017**. Synthesis of Zeolite-Zeolite (MFI-FAU) Composite Catalysts for the Isomerization of n-Hexane. *J. Chem. Soc. Pakistan* 39, 919–933.
16. Munir, D.; Usman, M.R. **2016**. Synthesis and Characterization of Mesoporous Hydrocracking Catalysts. *IOP Conf. Series: Mat. Sci. Eng.* 146, 1–7.
17. Usman, M.R.; Alotaibi, F.M. **2016**. Unified Kinetics of n-Heptane Hydroisomerization over Various Pt/Zeolite Catalysts. *Prog. React. Kinet. Mec.* 41, 177–192.
18. Aslam, R.; Usman, M.R.; Irfan, M.F. **2016**. A Comparative Study of LHHW and ER kinetic models for NO Oxidation over Co_3O_4 Catalyst. *J. Environ. Chem. Eng.* 4, 2871–2877.
19. Usman, M.R.; Cresswell, D. **2015**. Prototype Reactor Simulation for On-board Use of Hydrogen in a Hybrid MTH (Methylcyclohexane-Toluene-Hydrogen)-Gasoline System and a Simplified Dynamic Modeling for the Startup. *Chem. Eng. Res. Des*. 104, 125–138.
20. Ahmad, M.; Amin, A.; Abdullah; Akram, M.S.; Usman, M.R. **2015**. Characterization and Rheological Behavior of Various Pakistani Crude Oils. *Braz. J. Pet. Gas*. 9, 85–94.
21. Usman, M.R.; Alotaibi, F.M.; Aslam, R. **2015**. Dehydrogenation-Hydrogenation of Methylcyclohexane-Toluene System on 1.0wt% Pt/Zeolite Beta Catalyst. *Prog. React. Kinet. Mec.* 40, 353–366.
22. Akram, M.S.; Munir, D.; Usman, M.R. **2014**. Associative Adsorption Kinetics: A Novel Kinetic Model for the Dehydrogenation of Methylcyclohexane. *Prog. React. Kinet. Mec.* 39, 404–417.
23. Usman, M.R.; Cresswell, D.L.; Garforth, A.A. **2014.** Mathematical Modeling of a Laboratory Methylcyclohexane Dehydrogenation Reactor and Estimation of Radial Thermal Conductivities and Wall Heat Transfer Coefficients. *Chem. Eng. Comm*. 201, 1240–1258.
24. Usman, M.R.; Aslam, R. **2014**. The Dehydrogenation of Methylcyclohexane for On-board Hydrogen Use: Initial Rate Kinetics over 1.0 Wt% Pt/γ-Al_2O_3 Catalyst. *Arab. J. Sci. Eng.* 39, 615–620.
25. Usman, M.R.; Cresswell, D.L.; Garforth, A.A. **2013.** Dehydrogenation of Methylcyclohexane: Parametric Sensitivity of the Power Law Kinetics. *ISRN Chem. Eng.* 2013. Article ID 818953, 1–7.
26. Usman, M.R.; Cresswell, D.L.; Garforth, A.A. **2013.** Dehydrogenation of Methylcyclohexane for On-board Hydrogen Use: Catalyst Development and Performance. *J. PIChE* 41, 13–20.
27. Usman, M.R.; Cresswell, D.L. **2013**. Options for On-board Use of Hydrogen Based on the Methylcyclohexane-Toluene-Hydrogen-System. *Int. J. Green Energy* 10, 177–189.
28. Khawaja, S.Y; Usman, M.R.; Khan, S.; Afzal, W.; Akhtar, N.A. **2013**. Dispersed Phase Holdup in a Tall and Low Plate Free Area Liquid Pulsed Sieve-Plate Extraction Column. *Sep. Sci. Tech*. 48, 175–182.
29. Usman, M.R.; Cresswell, D.L.; Garforth, A.A. **2012**. Selectivity of the Formation of Ring Closed Products and Methylcyclohexenes in the Dehydrogenation of Methylcyclohexane to Toluene. *ISRN Chem. Eng.* 2012. Article ID 818953, 1–7.
30. Usman, M.R.; Cresswell, D.L.; Garforth, A.A. **2012**. Detailed Reaction Kinetics for the Dehydrogenation of Methylcyclohexane over Pt Catalyst. *Ind. Eng. Chem. Res.* 51, 158–170.
31. Usman, M.R.; Cresswell, D.L.; Garforth, A.A. **2011**. By-Products Formation in the Dehydrogenation of Methylcyclohexane. *Pet. Sci. Tech.* 29, 2247–2357.
32. Usman, M.R.; Aslam, R.; Alotaibi, F. **2011**. Hydrogen Storage in a Recyclable Organic Hydride: Kinetic Modeling of Methylcyclohexane Dehydrogenation over 1.0 wt% Pt/θ-Al_2O_3. *Energy Sources A* 33, 2264–2271.
33. Usman, M.R. **2011**. Catalytic Dehydrogenation of Methylcyclohexane over Monometallic Catalysts for On-board Hydrogen Storage, Production, and Utilization. *Energy Sources A* 33, 2231–2238.

34. Usman, M.R. **2011**. Methylcyclohexane Dehydrogenation over Commercial 0.3 wt% Pt/Al_2O_3 Catalyst. *Proc. Pak. Acad. Sci.* 48, 13–17.
35. Usman, M.R.; Hussain, S.N.; Asghar, H.M.A.; Sattar, H.; Ijaz, A. **2011**. Liquid-Liquid Extraction of Acetic Acid from an Aqueous Solution Using a Laboratory Scale Sonicator, *J. Quality and Tech. Managem.* 7, 115–121.
36. Usman, M.R.; Cresswell, D.L.; Garforth, A.A. **2011**. Validity of Sinfelt's Kinetic Model for the Dehydrogenation of Methylcyclohexane, *J. PIChE* 39, 1–12
37. Awan, J.A.; Usman, M.R.; Khan, R.U.; Richon, D. **2011**. Electrical Conductivity of n-Propylmercaptan (n-PM) in Methyldiethanolamine (MDEA) Aqueous Solutions at 303 K. *J. PIChE* 39, 13–20.
38. Khwaja, S.Y.; Usman, M.R.; Khan, S.; Afzal, W.; Akram, M.S.; Khan, R.U.; Akhtar, N.A. **2011**. On the Factors Influencing the Hydrodynamic Performance of a Pulsed Sieve-Plate Extraction Column: Dispersed Phase Holdup. *J. Fac. Eng. Tech.*, 1–11.
39. Irfan, M.F.; Usman, M.R.; Kusakabe, K. **2011**. Coal Gasification in CO_2 Atmosphere and Its Kinetics Since 1948: A Brief Review. *Energy* 36, 12–40.
40. Usman, M.R.; Hussain, S.N.; Asghar, H.M.A.; Sattar, H.; Afzal, W. **2009**. Drop Size in a Liquid Pulsed Sieve-Plate Extraction Column. *Braz. J. Chem. Eng.* 26, 677–683.
41. Usman, M.R.; Rehman, L.; Bashir, M. **2008**. Drop Size and Drop Size Distribution in a Pulsed Sieve-plate Extraction Column. *Proc. Pak. Acad. Sci.* 45, 41–46.
42. Usman, M.R.; Rehman, L.; Bashir, M.; Butt, M.A. **2006**. Mass Transfer Performance in a Pulsed Sieve-Plate Extraction Column. *Proc. Pak. Acad. Sci.* 43, 173–179.

Conference Proceedings

1. Usman, M.R.; Munir, D. **2020**. Waste Plastics to Liquid Fuels over Al-Impregnated Zeolite Beta Catalyst. 9th International Conference on Clean and Green Energy, February 10–12, 2020, Barcelona, Spain. (Oral Presentation, **Best Presentation Award**, Published in International Journal of Material Science and Engineering).
2. Usman, M.R.; Mateen, A. **2018**. Environmentally Friendly Fuel by n-Heptane Isomerization: Kinetics of Catalyst Deactivation. 9th International Conference on Environmental Science and Technology, June 20–22, 2018, Prague, Czech Republic. (Oral Presentation, **Best Presentation Award**, Accepted for the Publication in Int. J. Chem. Eng. Appl.).
3. Munir, D., Usman, M.R. **2017**. Investigating Hydrocracking of Waste Plastic Mixture Using Mesoporous Beta Catalysts, 67th Canadian Chemical Engineering Conference, October 22–25, 2017**,** Edmonton, Canada. (Poster Presentation by My PhD Student).
4. Usman, M.R.; Akram, M.S. **2017**. Simulation of a Hydrogen Fueled Mobile Power Plant Based on a Sustainable Organic Hydride, 10th International Conference on Thermal Engineering: Theory and Applications, February 26–28, **2017**, Muscat, Oman (Oral Presentation).
5. Munir, D.; Aslam, R. Usman, M.R. **2016.** Investigating Hydrocracking of Actual Waste Plastics Mixture Using Composite Mesoporous Zeolite Catalysts, 6th Symposium on Engineering Sciences, December 21–22, **2016**, Lahore, Pakistan (Oral Presentation by My PhD Student).
6. Fareed B.; Aslam, R.; Usman. M.R. **2016**. Investigation of zeolite catalyst for cracking of diesel, 6th Symposium on Engineering Sciences, December 21–22, **2016**, Lahore, Pakistan (Oral Presentation by My MS Student).
7. Munir, D.; Usman, M.R. **2016**. Hydrocracking of a Plastic Mixture over Various Micro-mesoporous Composite Zeolites, Fluidization XV, May 22–26, 2016, Quebec, Canada (Oral Presentation by My PhD student).
8. Usman, M.R. **2015**. Hydrogen Storage in Recyclable Organic Hydride: The Dehydrogenation of Methylcyclohexene, 3rd International Chemical Engineering and Chemical Technologies Conference (CHEMTECH '15), November 30–December 1, 2015, Istanbul, Turkey (Oral Presentation).

9. Munir, D.; Usman, M.R. **2015**. Synthesis and Characterization of Mesoporous Hydrocracking Catalysts, 14th International Symposium on Advanced Materials 2015, October 12–16, 2015, Islamabad, Pakistan (Oral Presentation by My PhD Student).
10. Usman, M.R.; Alotaibi, F.M. **2014**. Kinetics of n-Heptane Hydroisomerization over Pt/Zeolite Catalysts, The 23rd International Symposium on Chemical Engineering (ISCRE 23) and 7th Asia-Pacific Chemical Reaction Engineering Symposium (APCRE 7), September 07–10, 2014, Bangkok, Thailand (Oral Presentation).
11. Khawaja, S.Y; Usman, M.R.; Afzal, W.; Akhtar, N. **2014**. Mass Transfer Performance of a Tall and Low Plate Free Area Liquid Sieve-Plate Pulsed Extraction Column. First International Young Engineers Convention, April 18–20, 2014, Lahore, Pakistan.
12. Usman, M.R. **2013**. Dehydrogenation-Hydrogenation of the Methylcyclohexane-Toluene System on a Pt/Zeolite Beta Catalyst, 2nd International Conference on Chemical and Process Engineering, June 8–9, 2013, Kula Lumpur, Malaysia (Oral Presentation).
13. Aslam, R.; Usman, M.R.; Muhammad F. Irfan. **2012**. Kinetic Modeling of NO Oxidation to NO_2 over Cobalt Oxide Catalyst International Conference on Engineering Sciences, March 29–30, 2012, Lahore, Pakistan (Oral Presentation by my Co-worker).
14. Haider, B.; Usman, M.R. **2012**. Densities and Volumetric Properties of Various Pure and Mixed Solvents, International Conference on Engineering Sciences, March 29–30, 2012, Lahore, Pakistan (Oral Presentation by my MS student).
15. Usman, M.R.; Cresswell, D.L.; Garforth, A.A. **2012**. Dehydrogenation of Methylcyclohexane: Kinetics and Reactor Modeling. 14th Asia-Pacific Confederation of Chemical Engineering Congress, February 21–24, 2012, Singapore (Oral Presentation).
16. Khawaja, S.Y; Usman, M.R.; Afzal, W.; Akhtar, N. **2011**. On the Factors Influencing the Performance of a Pulsed Sieve-Plate Extraction Columns: Holdup and Drop Size Distribution, 4th Symposium on Engineering Sciences, March 1, 2011, Lahore, Pakistan (Oral Presentation by My PhD Student, Published in J. Fac. Eng. Tech.).
17. Usman, M.R.; Cresswell, D.L.; Garforth, A.A. **2010**. Kinetics of Methylcyclohexane Dehydrogenation for On-board Hydrogen Storage and Utilization, 2nd Asia Pacific Conference on Ionic Liquids and Green Processes, September 7–10, 2010, Dalian, China (Oral Presentation).
18. Usman, M.R.; Cresswell, D.L.; Garforth, A.A. **2010.** Catalytic Dehydrogenation of Methylcyclohexane for the On-board Hydrogen Storage and Supply, AIChE Spring National Meeting, March 21–25, 2010, San Antonio, USA (Not attended)
19. Usman, M.R.; Cresswell, D.L.; Garforth, A.A. **2009**. Methylcyclohexane Dehydrogenation—A Convenient Way for Hydrogen Storage, AIChE Annual Meeting, November 08–13, 2009, Nashville, USA (Not attended).
20. Usman, M.R.; Cresswell, D.L.; Garforth, A.A. **2009**. On-board Hydrogen Storage: Kinetics of Methylcyclohexane Dehydrogenation, CEAS Postgraduate Student Conference, June 06, 2009, University of Manchester, United Kingdom (Poster presentation).
21. Usman, M.R.; Cresswell, D.L.; Garforth, A.A. **2008**. Dehydrogenation of Methylcyclohexane for On-board Hydrogen Storage, Applied Catalysis: Towards Sustainable Chemical Industry, November 12, 2008, Bath, United Kingdom (Poster presentation).
22. Usman, M.R.; Cresswell, D.L.; Garforth, A.A. **2008**. Catalytic Dehydrogenation of Methylcyclohexane in Pursuit of Successful MTH-System, Graduate Research Conference, September 17, 2008, University of Manchester, United Kingdom (Poster presentation).